# ENGINE CONTROLS

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# ENGINE CONTROLS

## 76-1 ENGINE CONTROLS.

This chapter contains information and maintenance instructions for the TH-57B and C engine control installation (Figure 76-1). This procedure is used to ensure that the engine responds equally to throttle inputs from either pilots or co-pilots station.

## 76-2 RIGGING REQUIREMENT.

The rigging procedure, as published in paragraph 76–3 is to be used anytime that throttle control system maintenance is required, or anytime that a fuel control unit is removed or replaced. In addition, the rigging check described in paragraph 76-4 may be accomplished anytime that verification of the correctness of the throttle rigging is necessary.

## 76-3 RIGGING PROCEDURE.

1. Rotate the instructor pilots (L/H) throttle twist grip to the full clockwise (open) position, and back counterclockwise in a sharp movement until contact is made with the idle detent stop. Maintain this throttle twist grip position during the accomplishment of steps 2 and 3.

2.. Check that the position of the bellcrank (6, Fig. 76-1) is approximately 0.5 inch forward of its pivot point as shown in Figure 76-1. If adjustment is needed, disconnect the controlex tube (1, Figure 76-1) at the bell crank, loosen its jam nut and hold the clevis end of the controlex tube. Use a wrench to hold the end of the controlex tube when loosening or tightening the jam nut. Install the bolt, washer, and cotter pin to secure the controlex to the upper hole of the bellcrank, as shown in Figure 76-1.

**NOTE**

The bolts used to connect the control tube to the lower level, the control tube to the bellcrank and the controlex tube to the bellcrank must be installed with the washer under the nuts only. Tighten nuts finger tight, then tighten to next castellation and install cotter keys.

3.. Recheck that the position of the throttle twist grip is against the idle detent stop. Recheck the position of the bellcrank for the approximate 0.5 inch dimension shown in Figure 76-1.

4. If connected, disconnect the control tube from the power lever . Set the fuel control quadrant pointer to the 30 degree position, and check that the power lever arm is approximately 0.5 inch below its pivot point, as shown in Figure 76-1. If adjustment is required, loosen the power lever attaching nut, adjust the arm to its proper position. Tighten the nut to 40 to 50 inch pounds. Adjust the lower rod end of the control tube so that it is at the correct length to join with the power lever, and connect them.

5. Check the correctness of the rigging by following the steps outlined in Paragraph 76-4.

## 76-4 RIGGING VERIFICATION PROCEDURE.

1. With engine off, turn instructor's (L/H) twist grip to full open position, then turn grip smartly back to idle detent position. Observe position of pointer of fuel control, it must be on the 30 degree position when viewed with the eye level even with the pointer. Failure to have eye level even with the pointer will result in an error in pointer position.

**NOTE**

If pointer is in any position but 30 degrees on the indicator quadrant, re-rigging is required.

2. Turn instructor's (L/H) twist grip to shut off position, just until idle detent button pops-up fully. Observe position of pointer on the indicator quadrant. Pointer position must be on or within .06 inch of the 30 degree position.

**NOTE**

If distance exceeds 0.06 inch, the control system must be inspected for wear and corrective action taken.

3. Repeat Paragraphs 76-3 and 76-4 above for pilots (R/H) grip twist grip to ensure the following:

   a. When throttle is rolled down to idle detent ensure pointer is within 0.06 inch of the 30 degree mark (above or below).

b. When throttle is rolled slowly up to idle detent, just until button pops-up fully, pointer position is not more than 0.06 inch below 30 degree mark on the fuel control quadrant.

**NOTE**

When complying with Paragraphs 76-3 and 76-4 above, total difference between both positions shall not exceed 0.06 inch.

c. Lever on fuel control firmly contacts minimum and maximum stop screws at shut off and full open positions respectively.

## 76-5. THROTTLE CABLE SEAT PAN MODIFICATION.

The purpose of this instruction is to provide instructions pertaining to the enlargement of the seat pan hole through which the throttle cable run is made en-route to the vertical tunnel. This instruction also includes information concerning the requirement to install a larger rubber grommet in that hole.

**NOTE**

This modification is required whenever the throttle cable is removed to assist other maintenance or during throttle cable replacement. Record keeping requirements are contained in Air Frame Change 012.

1. Gain access to both sides of seat web, P/N 206-031-106-067, (Figure 76-2).
2. Remove grommet, P/N MS35489-14 (Figure 76-2).
3. Enlarge the hole in web from 0.75 to 1.375 inch diameter using standard FAA approved practices.
4. Debur the hole, chemical film treat, and prime using BHT-206-SRM-1 as a guide.
5. Install grommet, P/N MS35489-23 (Figure 76-2). If necessary, trim grommet to stop interface with rivet directly below the hole.
6. Re-install all components removed while gaining access to the seat web.

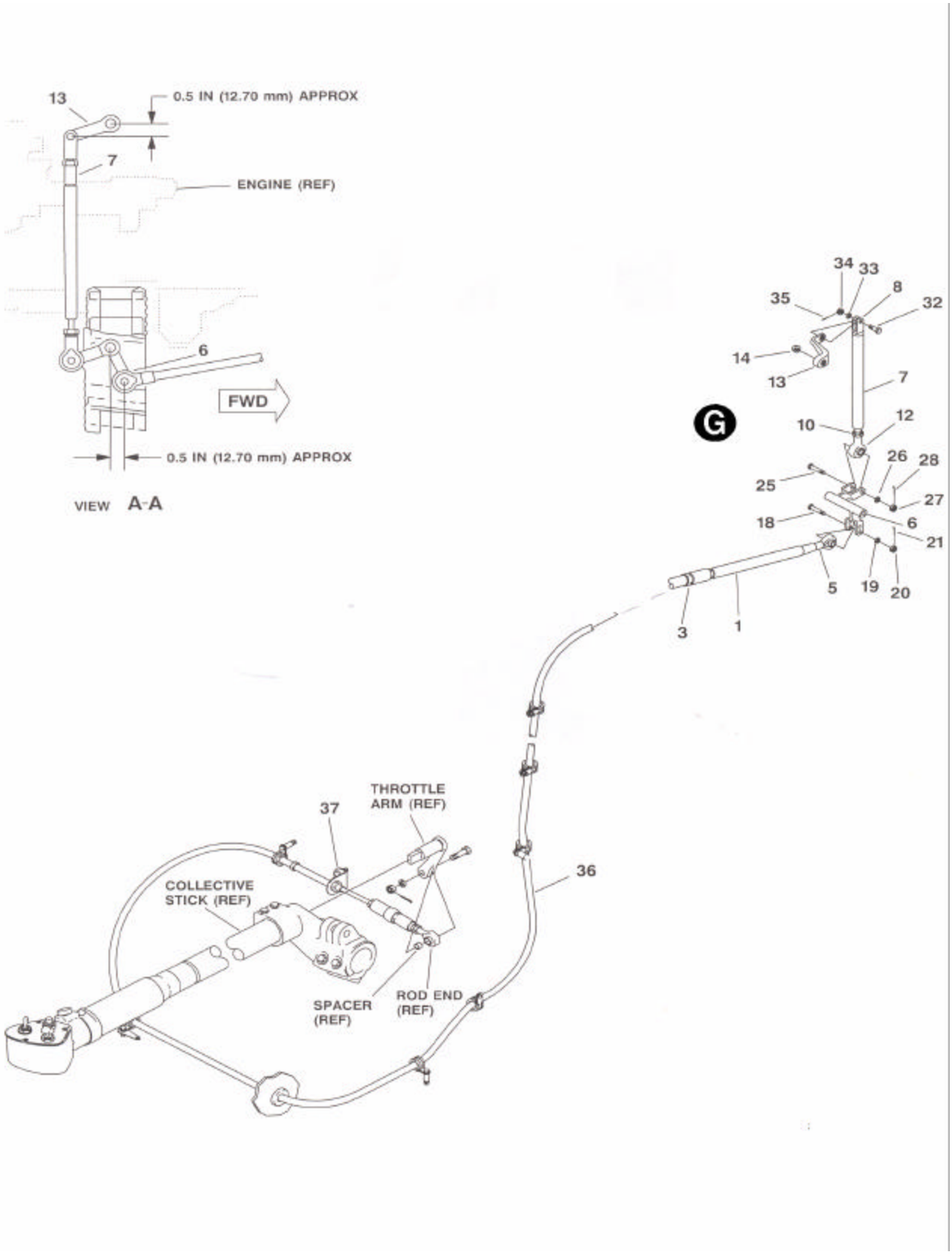


**Figure 76-1. Rigging Gas Producer (N1) Control (Sheet 1)**

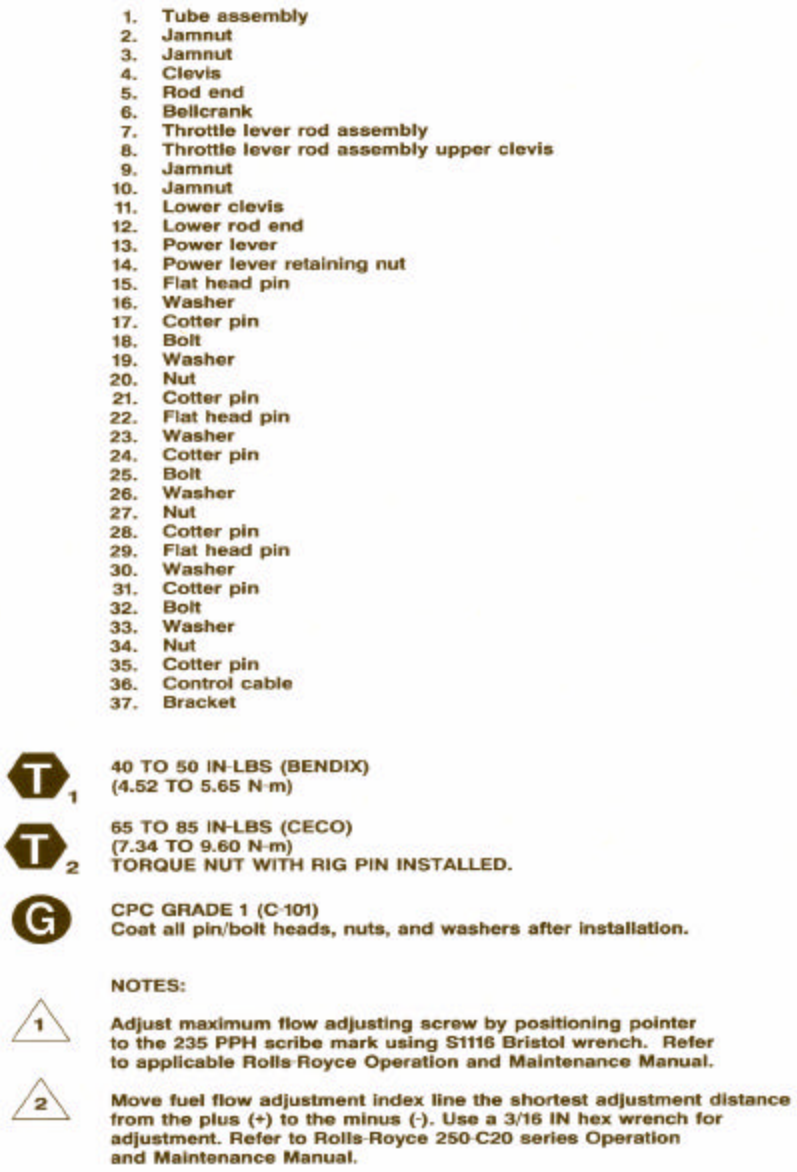


**Figure 76-1. Rigging Gas Producer (N1) Control (Sheet 2)**

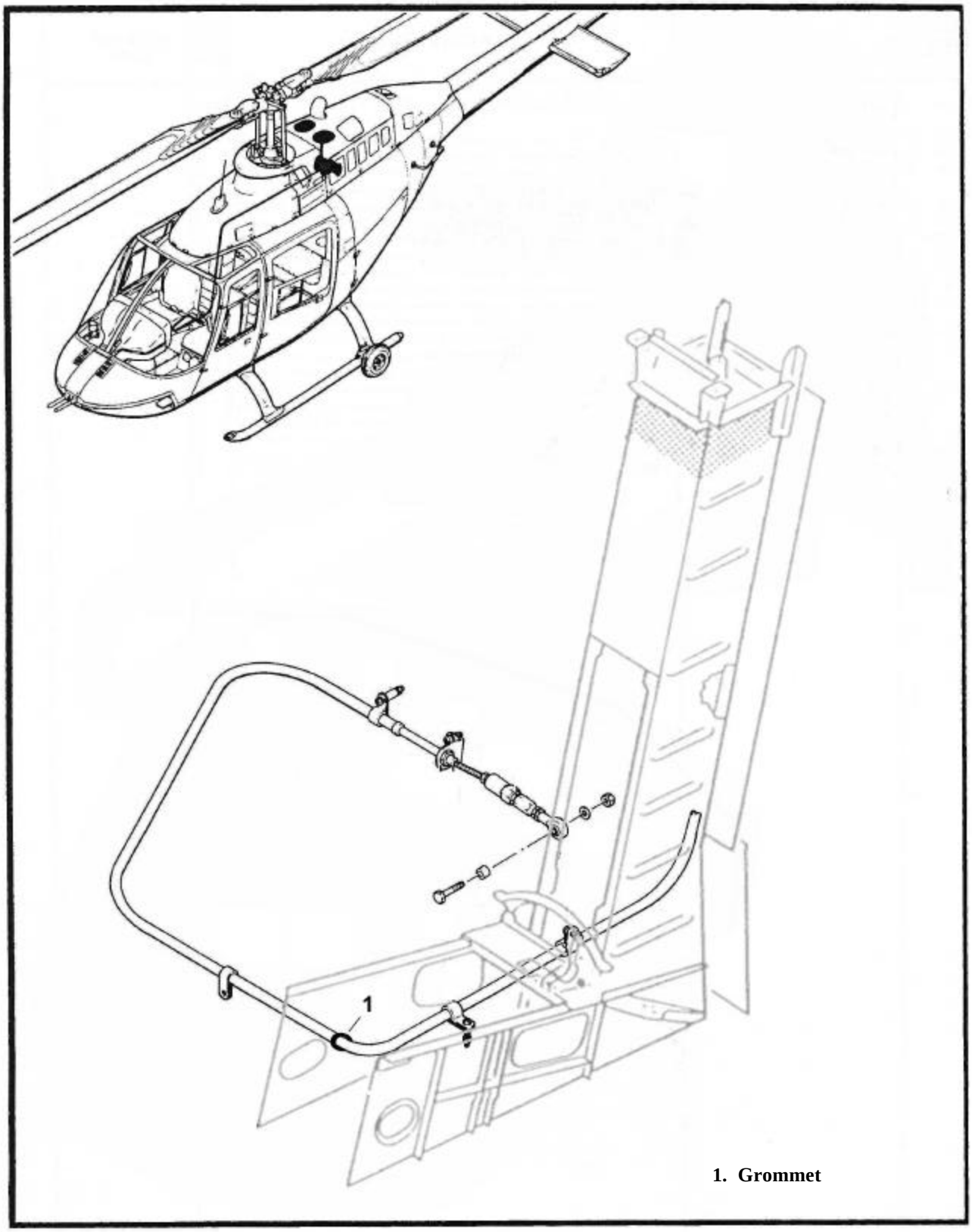


**Figure 76-2. Throttle Cable Grommet Installation**